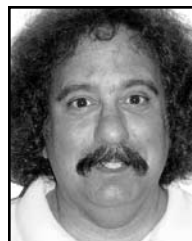




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# Locus of Control:

## Academic Achievement and Retention in a Sample of University First-Year Students

### Abstract

Higher education administrators are seeking to identify additional effective student pre-college predictors of university academic success to utilize in an increasingly competitive admission environment. A study of more than 3,000 first-year students assessed a traditional pre-college predictor, the ACT, along with a new potential pre-college predictor, locus of control, to determine their effectiveness in predicting first-year student academic achievement as measured by end-of-first-year cumulative GPA. The results of the study indicated that first-year students who entered university with lower scores on the locus of control scale (internals) obtained significantly higher GPAs than those who scored higher (externals) on this same scale. Pre-college ACT scores also served as an effective predictor of student academic success as demonstrated by significantly higher cumulative GPAs at the end of the first year. In addition, this study found that first-year students retained to their sophomore year demonstrated a statistically higher GPA than those who were not retained.

The National Association for College Admission Counseling (NACAC) found that grades in college prep courses, admission test scores, and high school grade point average (GPA) were the most common criteria utilized for college and university admission (Evans, 2000). However, a large, more recent study reporting on how postsecondary institutions select students found that, while the traditional admission evaluative criteria are still vitally important, administrators involved in college admission appear to want to have as many pieces of information as possible when making admission decisions (Sireci, Zanetti and Berger, 2003).

Thus higher education administrators are seeking strategies to identify effective predictors of university academic success that they can use as a part of the admission process. The identification of the predictors of success can be used to compare individual students to others in order to determine the likelihood of their success in college. Research literature categorizes these predictors into pre-college and at-college predictors. Pre-college predictors include student and family characteristics, such as college or university preparedness, test scores, high school grades, study skills, academic ability, adaptability, parents' level of education, and socioeconomic status.

At-college predictors of success include the classroom experience, academic advising, extracurricular activities, financial aid, and faculty involvement. Internal motivational factors and their relationship to academic success and retention are also often considered in the development of strategies for success (Levin and Levin, 1991). Substantial research has shown that academic performance is predicted by self-efficacy (Bandura, 1997; Multon, Brown and Lent, 1991).

Research has also indicated that two of the most important internal motivational factors that correlate to engagement and academic success are self-esteem and locus of control (Sisney, Strickler, Tyler, Wilhoit, Duke and Nowicki, 2000). Both self-esteem and locus of control are self system beliefs that individuals create about themselves and their interactions with the social environment that can cause distress or act as an interpersonal resource (Haine, Ayers, Sandler, Wolchick, and Weyer, 2003). Research has supported two theoretical views of self-esteem: (a) self-esteem as ratio of an individual's perceived success and the importance the individual gives to success in a particular domain, and (b) self-esteem as originating with the individual's perception of how significant others view him/her (Chubb and Fertman, 1997).

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Hence, self-esteem refers to an individual's perceived assurance of personal worth (Chow, Thompson, Wood, Beauchamp, and Lebrun, 2002). Locus of control refers to a person's beliefs about control over life events. Individuals who perceive both positive and negative event outcomes as being contingent on their behavior are considered “internals.” Individuals who perceive their outcomes in life as determined by forces beyond their control such as the result of luck, fate or powerful others are considered “externals.” Internals assume responsibility for their actions and accept responsibility for outcomes. Externals project blame on others or outside events (Grimes, 1997; Findley and Cooper, 1983).

Sisney et al. (2000) reported that locus of control has been associated with school success since the 1966 Coleman Report on Equality of Educational Opportunity was released. They added that studies with high school students have shown that an external locus of control correlated to lower academic achievement and higher dropout rates. Similarly, Ekstrom, Goertz, Pollack, and Rock (1986) concluded from their national study that high school dropouts exhibited more external control and were more likely than those who stayed in school to feel that their destiny was out of their hands. Finn and Rock (1997) asked whether self-esteem and locus of control explain differences between resilient (academically successful high school students) and non-resilient individuals within a group of low socio economic status (SES) minority students. They found that higher self-esteem and internal locus of control were both characteristics of low-SES

minority students who succeed in high school. In this study, an internal locus of control was shown to be a determinant of success when other predictors of attrition such as ethnicity, non-traditional family structure, lack of parent education, and low income were present.

Findley and Cooper (1983) conducted an extensive literature review of studies conducted on locus of control and academic achievement. The studies reviewed used elementary through college level samples. They also examined the potential moderating effects of personal variables such as age, race, gender, and SES. They concluded that locus of control and academic achievement are significantly and positively related and that the magnitude of the relationship is small to medium. However, the relationship tended to be stronger for adolescents than for adults and more substantial among males than females. Kalechstein and Nowicki (1997) concluded that locus of control predicted significant differences in academic achievement with an internal locus of control significantly and positively related to academic success.

Grimes (1997), in her investigation of academically under-prepared community college students, found that they demonstrated more test anxiety, lower course completion, and greater attrition than did college-ready students. Under-prepared students also demonstrated a more external locus of control, indicating that they possessed a perception of less control over their environment and less responsibility for taking action. However, Grimes' study did not find differences in grade point averages (GPA), study skills, or self-esteem. She concluded that locus of control may be a better predictor of academic self-concept than of academic achievement. Martin and Bowman (1985), in their study of disabled college students, concluded that a combination of locus of control and severity of disability predicted academic achievement. When measured only by GPA, externally controlled, severely disabled college students tended to be less successful in college as measured by GPA than internally controlled severely disabled college students. Unlike Grimes (1997), Martin and Bowman (1985) provided evidence that an internal locus of control correlates positively to GPA.

A number of studies indicate that students with good study skills tend to have higher academic achievement than students with poor study skills (Al-Hilawani and Sartawi, 1997; Blustein, Judd, Viniar, Padilla, Wedemeyer, and Williams, 1986). Therefore, Onwuegbuzie and Daley (1998) posulated that identifying correlates of study skills in college students might increase an understanding of the relationship between study skills and achievement by identifying the attributes of successful students. Results from their multiple regression model showed that locus of control is the best predictor of successful study skills, explaining 27 percent of the variance. Other variables included perceived self-worth, perceived intellectual ability, and social interdependence.

Students with the best study skills tended to score higher on the Internal Locus of Control Scale. Results from Prociuk and Breen's (1974) study of psychology college students indicated that an internal locus of control was positively correlated with successful study skills and academic success, while an external locus of control was negatively correlated with study skills and academic success.

Nelson and Mathias (1995) provided evidence that showed that an internal locus of control is associated with higher self-motivation, higher social maturity and greater independence. They also found that an internal locus of control correlates positively academic achievement in college students. Kaiser (1975) concluded that students with an internal locus of control obtain higher tests scores and credit their academic success to internal factors rather than fate, luck or powerful others used by those with an external locus of control. Gadzella, Williamson and Ginther (1985) did not find any significant correlation between academic achievement and locus of control.

Li-Ya, Kick, Fraser, and Burns (1999) examined two psychological dynamics that may affect status attainment process, which is defined as an individual's educational attainment, occupational attainment, and earnings status attainment processes. These two variables are self-esteem and locus of control. Two of the hypotheses tested were that (a) an internal locus of control favorably affects educational attainment, and (b) an internal locus of control thus favorably affects occupational attainment, as education plays an important role in promoting achievement and producing class inequalities. Other variables examined were race, gender, parents' SES, and parents' educational and occupational status. Locus of control was found to exert effects on both education (.135) and occupation (.097), and its effects were found to be stronger than that of self-esteem (education .078 and occupation .060).

Research literature points to a correlation between locus of control and college student academic success. Prior studies have analyzed subgroups such as disabled students (Martin and Bowman, 1985), students of color (Levin and Levin, 1991), students in college subject courses (Onwuegbuzie and Daley, 1998; Gadzella et al., 1985; Prociuk and Breen, 1974), female students (Al-Hilawani and Sartawi, 1997), specific university college freshmen (Hall and Gahn, 1994), and university community college students (Grimes, 1997). Research on locus of control and academic success using a large sample of first-year students in a four-year university has not been conducted. Previous studies (Pharr and Bailey, 1993; Wade and Walker, 1994; Laing, Engen and Marey, 1990) have determined that the American College Testing (ACT) score is a predictor of academic success. Although the primary focus of this study is on locus of control, the ACT score, a traditional predictor of academic success, was

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evaluated to determine if it was also an effective predictor of first-year success for this student sample.

## Method

### Hypotheses

This study examines both locus of control, as well as ACT scores and their role as predictors of academic success as measured by end of first year cumulative GPA in a large public university. The following hypotheses were developed for this study: (a) both ACT and locus of control scores will predict end of first year cumulative GPA; (b) first-year students with lower scores on the locus of control scale (internals) will have higher cumulative GPA's than students who obtain higher scores on the locus of control scale (externals); and (c) students who are retained to their sophomore year will have an average higher cumulative GPA than students who are not retained to their sophomore year.

### Sample

Two cohorts of students at a large southern public state university were asked to complete the Adult Nowicki-Strickland Internal External Control Scale (ANS-IE) during their freshman summer orientation from late July through mid-August 2000 and 2001. Three thousand sixty-six freshmen completed the ANS-IE. The two cohorts used were 1,519 first-time freshmen entering the university in fall of 2000 and 1,547 fall 2001.

### Instrumentation

The ANS-IE is a 40-item inventory written in a yes/no format that assesses the extent to which one's decisions are controlled by internal or external forces (e.g. “Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?” and “Do you feel that when good things happen they happen because of hard work?”). The items are written so that persons with a fifth-grade reading level comprehension

can complete the instrument. The scale is scored so that the higher the score, the more external the locus of control. Split-half reliability ranges from .74 to .86, and the test-retest reliability for over a six-week period is  $r=.83$ . Support for the construct validity ANS-IE comes from significant positive correlation with the Rotter,  $r=.68$ ,  $df=47$ ,  $p<.01$  (Nowicki and Duke, 1974).

### Data Analysis

General demographic data (gender, ethnicity) and indicators of academic success (cumulative GPA at the end of the freshman year and ACT scores) for each student in the sample were collected from an institutional database. This institutional database was also used to identify the freshman students who were retained to their sophomore year. Retention is defined for this study as the percentage of first-year, first-semester students who were officially enrolled the following fall semester.

Student cumulative grade point average (GPA) was used as the measure of academic success and identified as the dependent variable. Pearson correlations were obtained to determine if a significant relationship existed between locus of control scores, ACT scores, and cumulative GPA. An independent t-test was performed to determine whether there is a statistical difference in cumulative GPA between the first year students who were retained to their sophomore year and those who were not. Since the authors were interested in whether locus of control scores and ACT scores predicted cumulative grade point average (GPA), a linear regression was also performed on the data set. Results were reported, if significant, at  $p < .05$ .

**Table 1:**  
**Freshman Locus of Control Scores**

	N	%	M	SD
Total	3066	100	8.79	4.23
Males	1448	47.2	8.52	4.30
Female	1618	52.8	9.03	4.14
Whites	2580	84.1	8.61	4.17
Minorities	484	15.8	9.78	4.44
Other	2	.1	9.0	2.83

### The Results

As shown in Table 1, the mean obtained for locus of control scores for the 3,066 first year students was 8.79, and the standard deviation was 4.23. Table 1 also shows that males were more internally motivated than females, and white freshmen were more internally motivated than minority freshmen. Internals had a higher cumulative GPA than externals.

Means (with standard deviations in parentheses) for ACT scores and cumulative GPA were 22.38 (3.91), and 2.51 (.97) respectively. Males had higher ACT scores than females, but had lower cumulative GPA's than females.

Two predictors were entered in the stepwise linear regression equation: ACT score and the locus of control score. The results indicated that ACT score  $t = 14.95$ ,  $p < .05$  and locus of control  $-3.23$ ,  $p < .05$  are both significant predictors of Cumulative GPA for freshmen in the sample. Results of analysis of the data showed that ACT scores accounted for more of the variance in cumulative GPA than locus of control did. Both predictors accounted for seven percent of the variance.

Pearson correlations indicate that the higher the student's locus of control score ( $r = -.082$ ,  $p < .05$ ), the lower the student's cumulative GPA and that the higher the freshman's ACT score ( $r = .267$ ), the higher the freshman's cumulative GPA.

An independent  $t$  test was performed with the cumulative GPA as the independent variable and the category retention as the dependent variable. Results indicate that the difference in cumulative GPA between students who were retained ( $M = 2.67$ ,  $SD = .8582$ ) to their sophomore year and those who were not ( $M = 2.11$ ,  $SD = 1.1003$ ) is significant, as indicated by  $t = 15.052$   $p < .05$ .

In summary, the results are as follows: (a) both ACT and locus of control are significant predictors of academic success as measured by cumulative GPA; (b) freshmen who obtained lower scores on the locus of control scale (inter-

nals) demonstrated a statistically significant higher GPA than those freshmen who obtained higher scores on the locus of control scale; and (c) freshmen retained to their sophomore year demonstrated a statistically significant higher GPA than those who were not retained.

### Discussion

This study investigated the pre-college predictive effectiveness of student locus of control and ACT scores on end of first year cumulative GPA, as well as first-year-to-sophomore retention. Pre-college academic achievement as measured by ACT scores was found to be a significant predictor of first-year academic success as measured by end-of-first-year cumulative GPA. Locus of control was also found to be a predictor of first-year academic success as measured by end-of-first-year cumulative GPA. Both ACT and locus of control were correlated positively to cumulative GPA: (a) first-year students with higher ACT scores obtained higher cumulative GPAs and (b) first-year internals (those who scored lower on the locus of control scale) obtained higher GPAs than did externals (those who obtained higher scores on the locus of control scale).

Research (Hall and Wiley Gahn, 1994; Hu and St. John, 2001; Aitken, 1982) indicates that college grades contribute to student retention. Lower grades are negatively associated with retention, while higher grades predict academic success. Results of this study contribute to the body of literature on student retention and academic success, with students retained to their sophomore year earning a significantly higher mean cumulative GPA than students who were not retained to their sophomore year.

Because students who were retained were found to have higher grades than those who were not, and students with a more internal locus of control had higher grades than those with a more external locus of control, then it is reasonable to suggest that students who obtained higher scores on the lo-



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cus of control scale (externals) may be more at risk for dropping out of college. As students progress further in their studies, courses become more difficult, and students need to rely more on themselves, making it more difficult for externals, who perceive success as being dependent on luck, fate and powerful others. This may lead externals to feel uncomfortable and frustrated—deciding they do not belong in the university environment. As they believe that their future success is contingent on external factors, these students may be less apt to seek out and utilize resources available to help them succeed such as tutorials, academic support groups, academic advisors, professors with whom to discuss difficulties, or study groups. They lack the self-efficacy to seek support and the self-autonomy to realize that academic success largely depends on them and not luck, fate or authority figures.

Therefore, those wishing to facilitate student retention may target externals for their intervention programs. The concept of personal responsibility for success may be effectively incorporated into programs to enhance retention of first year students. Exercises should be incorporated in retention programs that help students develop the ability to behave and learn autonomously. This will help students believe that

academic success is not in the hands of professors or luck, but in their own capable hands. Interventions that enhance externals academic achievement may also facilitate retention and academic success.

Admission pressures and competition for students at colleges and universities is expected to continue and increase (Sisney et al., 2003). Students who can succeed academically and are therefore retained throughout their undergraduate years will be particularly sought after. The identification of new and additional student pre-college predictors of success will allow admission administrators to utilize additional predictive data, as well as the traditional pre-college predictors already in regular use. Traditional admission criteria such as performance in high school and performance on a standardized test, etc., will provide baseline data that can be enriched by other predictors such as locus of control. College and university administrators are seeking as many pieces of information as possible when making admission decisions. Further studies must be done to determine whether an internal locus of control will constantly serve as a reliable predictor of first year academic success. Only then can it be considered as part of a larger grouping of factors to be used regularly in admission decisions.

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